ANSWER 16 OF 19 CAPLUS COPYRIGHT 2003 ACS
AN 2001:748194 CAPLUS
DN 135:285323
TI Protein **crystallization** in **microfluidic** structures
IN Weigl, Bernhard H.; Sygusch, Jurgen
PA USA
SO U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM C30B001-00
NCL 117206000
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 75
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001027745	A1	20011011	US 2001-822595	20010330
	US 6409832	B2	20020625		
	US 2003075101	A1	20030424	US 2002-163148	20020603
PRAI	US 2000-193867P	P	20000331		
	US 2001-822595	A1	20010330		

AB Disclosed is a device for promoting protein **crystal** growth (PCG) using **microfluidic** channels. A protein sample and a solvent soln. are combined within a microfluidic channel having laminar flow characteristics which forms diffusion zones, providing for a well defined crystn. Protein crystals can then be harvested from the device. The device is particularly suited for microgravity conditions.
ST protein crystn microfluid channel
IT Crystallization apparatus
(device for protein crystn. in microfluidic structures)
IT Proteins, general, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(device for protein crystn. in microfluidic structures)

L6 ANSWER 17 OF 19 CAPLUS COPYRIGHT 2003 ACS
AN 2001:748101 CAPLUS
DN 135:269680
TI Protein **crystallization** in **microfluidic** structures
IN Weigl, Bernhard H.; Sygusch, Jurgen
PA Micronics, Inc., USA
SO PCT Int. Appl., 50 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N
CC 9-16 (Biochemical Methods)
Section cross-reference(s): 75
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001075415	A2	20011011	WO 2001-US10565	20010330
	WO 2001075415	A3	20020228		
	W: AU, CA, JP				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	AU 2001051218	A5	20011015	AU 2001-51218	20010330
	EP 1285106	A2	20030226	EP 2001-924572	20010330
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
PRAI	US 2000-193867P	P	20000331		
	WO 2001-US10565	W	20010330		

AB A device for promoting protein **crystal** growth (PCG) using **microfluidic** channels. A protein sample and a solvent soln. are combined within a microfluidic channel having laminar flow characteristics which forms diffusion zones, providing for a well defined crystn. Protein crystals can then be harvested from the device. The device is

ST spatiotemporal protein **crystal** growth **microfluidic** silicon devices

IT Crystal growth apparatus
Crystal nucleation
Crystallization
Electrostatic force
Semiconductor device fabrication
(spatiotemporal protein **crystal** growth studies using **microfluidic** silicon devices)

IT 7440-21-3, Silicon, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(p-type and n-type; spatiotemporal protein **crystal** growth studies using **microfluidic** silicon devices)

IT 9001-63-2, Lysozyme
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(spatiotemporal protein **crystal** growth studies using **microfluidic** silicon devices)

RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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QD 921 S36

particularly suited for microgravity conditions.
ST protein crystn microfluidic structure
IT **Crystallization** apparatus
(**Microfluidic** structures; protein crystn. in microfluidic structures)
IT Pumps
(air; protein crystn. in microfluidic structures)
IT Mixers (processing apparatus)
(jet, vortex; protein crystn. in microfluidic structures)
IT Flow
(laminar; protein crystn. in microfluidic structures)
IT Aggregates
Air
Buffers
Concentration (condition)
Containers
Crystal growth
Crystallization
Crystals
Diffusion
Filters
Fluids
Microgravity
Mixers (processing apparatus)
Samples
Sensors
Solutions
Solvents
(protein crystn. in **microfluidic** structures)
IT Plastics, uses
RL: DEV (Device component use); USES (Uses)
(protein crystn. in microfluidic structures)
IT Proteins, general, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(protein crystn. in microfluidic structures)

L6 ANSWER 19 OF 19 CAPLUS COPYRIGHT 2003 ACS
AN 1999:30602 CAPLUS
DN 130:278737
TI Spatiotemporal protein **crystal** growth studies using **microfluidic** silicon devices
AU Sanjoh, Akira; Tsukihara, Tomitake
CS Advanced Technology Research Laboratories, Sumitomo Metals, Amagasaki, 660, Japan
SO Journal of Crystal Growth (1999), 196(2-4), 691-702
CODEN: JCRGAE; ISSN: 0022-0248
PB Elsevier Science B.V.
DT Journal
LA English
CC 9-1 (Biochemical Methods)
AB Fundamental investigations of protein crystn. using miniaturized microfluidic silicon devices were presented towards achieving spatiotemporal nucleation and subsequent post-nucleation growth. The developed microfluidic silicon device was typically composed of crystal growth cell, reservoir cell, and optionally of heater elements for supersatn. control. A specific fine pattern area in the growth cell which was fabricated on the silicon substrate with doped p- and n-type silicon layers, served as spatially selective nucleation site of dissolved protein mols. through electrostatic attractive force. In a model material, hen egg white lysozyme, a large no. of crystals were grown on the defined nucleation site evenly spaced from each other, whereas parasitic crystal growth positioned around the selective nucleation site, was suppressed by the effects of electrostatic repulsive force between the doped silicon surface and charged protein mols. A possible crystn. mechanism of describing the heterogeneous nucleation during the initial stage and during the growth of the crystal at the electrolyte-semiconductor silicon surface is proposed and discussed.

L2 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2003 ACS
AN 2000:305127 CAPLUS
DN 133:147031
TI A micromachined double **lumen** microdialysis probe connector with incorporated sensor for on-line sampling
AU Bohm, S.; Olthuis, W.; Bergveld, P.
CS MESA+ Research Institute, University of Twente, Enschede, 7500 AE, Neth.
SO Sensors and Actuators, B: Chemical (2000), B63(3), 201-208
CODEN: SABCEB; ISSN: 0925-4005
PB Elsevier Science S.A.
DT Journal
LA English
CC 9-1 (Biochemical Methods)
Section cross-reference(s): 6, 79
AB In this paper, a micromachined double **lumen** microdialysis probe connector for online, in-vivo sampling is presented. The connector forms an integral part of a double **lumen** type microdialysis probe and guides the flow of sample fluid ('dialyzate') directly into a flow cell with space for integrated sensors. Basically, the connector is a sandwich construction of two, multistep KOH etched silicon wafers which, after bonding allows the easy insertion of two concentric fused silica capillaries, required to construct the probe. For the exptl. evaluation of the performance, in this work, a chloride selective sensor was integrated in the flow cell of the connector to continuously measure the chloride concn. in the dialyzate flow. It will be shown that by adopting micromachining techniques, the induced lag time of the measurement can easily be decreased by a factor of more than 5, as compared to a conventional probe connected to a flow-through sensor. Another benefit of the proposed direct coupling of double **lumen** microdialysis probes and **microfluidic** structures in silicon, is the fact that all crit. fluidic connections, esp. the probe/sensor connection, are kept inside, making the microanal. system more rigid.
ST microdialysis double **lumen** probe sampling sensor chloride; dialysis double **lumen** probe sampling sensor micromachining chloride
IT Dialysis
(microdialysis; micromachined double **lumen** microdialysis probe connector with incorporated sensor for online sampling)
IT Micromachining
Sampling
Sensors
(micromachined double **lumen** microdialysis probe connector with incorporated sensor for online sampling)
IT Sampling apparatus
(probes; micromachined double **lumen** microdialysis probe connector with incorporated sensor for online sampling)
IT 16887-00-6, Chloride, analysis
RL: ANT (Analyte); ANST (Analytical study)
(micromachined double **lumen** microdialysis probe connector with incorporated sensor for online sampling)
RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD
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